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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,239	01/26/2004	Takao Harada	248043US3	6689

22850 7590 10/04/2007  
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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MCGUTHRY BANKS, TIMA M

ART UNIT	PAPER NUMBER
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1742

NOTIFICATION DATE	DELIVERY MODE
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10/04/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

## Office Action Summary

**Application No.**

10/763,239

**Applicant(s)**

HARADA ET AL.

**Examiner**

Tima M. McGuthry-Banks

**Art Unit**

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of Claims***

Claim 1 is amended, wherein Claims 2-7 remain for examination. The examiner notes that the basis for the amendments to Claim 1 can be found on page 8 and in the figures, respectively.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

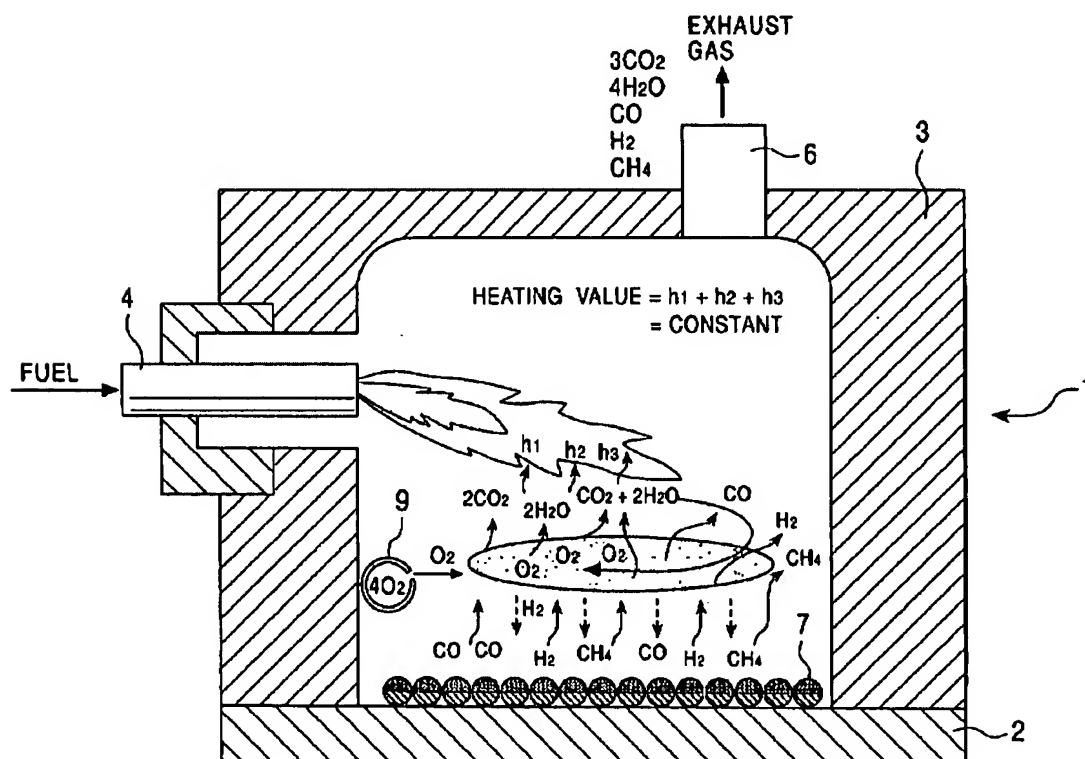
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Tetsumoto et al (US 7,032,526 B2).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Tetsumoto et al anticipates the claimed invention. Tetsumoto et al teaches combustion-treating waste in a rotary hearth furnace (column 6, lines 35-37). The waste can include metal oxides, and the combustion treatment can reduce the metal oxides (column 16, lines 63-66). Carbon derived from the waste contributes to the reduction of the metal oxide (lines 55 and 56). Figure 4 below shows the basic embodiment of the invention:

FIG. 4



Combustion waste undergoes treatment by heat from combustion burners 4 (column 6, lines 24-26). A control device is used to control the amount of gas to the secondary combustion burners 9 (column 7, lines 14-21). The secondary combustion supply device burns in a condition of excessive air (column 15 line 67 to column 16, line 2). Regarding the limitation of the oxygen

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concentration, the examiner interprets the aforementioned as a greater amount of oxygen (air) to the secondary combustion supply device. Regarding Claim 6, the combustion burners individually control the temperatures of the different zones shown in Figure 10 (column 17, lines 39-42). Regarding Claim 7, heat of combustion of the combustible gas generated from the combustible waste was used for the reduction of the metal oxide (lines 57-59).

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tetsumoto et al.

Tetsumoto et al discloses the invention substantially as claimed. However, Tetsumoto et al does not disclose the concentration of CO as claimed in Claims 2 and 3 or the degree of reduction as claimed in Claim 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the process of Tetsumoto et al would result in the concentrations and degree of reduction as claimed, since by controlling the supply of the second combustion burner one can get the desired concentration.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tetsumoto et al as applied to claim 1 above, and further in view of Gitman (US 4,923,391).

Tetsumoto et al disclose the invention substantially as claimed. However, Tetsumoto does not disclose the air ratio of the primary burner as claimed.

Gitman discloses a method of combusting fuel in a furnace having a pair of regenerative burners with two sources of oxidizing gases having different oxygen concentration (abstract). Air is used as the first oxidizing gas (column 5, lines 3 and 4). The examiner acknowledges the difference in the apparatus used in the method of Gitman, namely that the first and second oxidizing gases result from the same burner. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the primary burner in Tetsumoto et al would have an oxygen composition as that in air, since using air optimizes the rate of heat exchange between the relatively cold charge surface and the flame (column 6, lines 19 and 20). Tetsumoto teaches a rotary furnace with a continuous feed.

### ***Response to Arguments***

Applicant's arguments, see pages 4 and 5, filed 7 September 2007 with respect to the rejection(s) of claim(s) 1-7 under Meissner et al in view of Fuji et al and optionally Sarma et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tetsumoto et al.

### ***Conclusion***

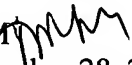
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nishimura et al (5,989,019) discloses a rotary hearth furnace using primary and secondary burners. Tateishi et al (US 6,368,379) teaches an apparatus for producing a reduced metal using a moving hearth reducing furnace.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks whose telephone number is 5712722744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TMM   
September 28, 2007

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700